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CENSUS CITIES EXPERIMENT IN URBAN CHANGE DETECTION

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Type I Progress Report for Period 1 September 1972 - 31 October 1972

Prepared for:

Goddard Space Flight Center
Greenbelt, Maryland 20771

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Type I Progress Report

ERTS-1

1 September 1972 - 31 October 1972

a. TITLE: Census Cities Experiment in Urban Change Detection. (ERTS-A

Proposal No.: SR-273)

b. GSFC ID No.: IN-084

c. Statement and explanation of impedance:

Imagery has been received for only a few test sites for which data was requested, these being San Francisco, Phoenix and Tucson. Large quantities of imagery have been received for areas not part of any specified test sites while available data for most mandatory and desirable test areas have not been received. This discrepancy between receipt of non-requested coverage and no receipt of requested coverage has been due to programming errors for data requirements in the computer system at NDPF. This problem has been brought to their attention and a new listing of data requirements and test site coordinates has been submitted for reprogramming. Imagery for remaining test sites has been back-ordered.

In addition, the work statement of ERTS Experiment 273 (GSFC ID No. IN-084) is still on record as that appearing in the Memorandum of Understanding between NASA and USGS which is based on the initial proposal but which was subsequently revised. The revised work statement omits certain tasks in keeping with the reduced budget and suggested time frame. An Amendment of the new work statement is in preparation.

d. Accomplishments during the reporting period and those planned for the next period!

Pursue acquisition of reproduction of 1972 aircraft ERTS underflight photography which has already been flown, plus acquisition of aircraft ERTS underflight photography for additional urban test sites. This photography is essential for the change detection aspect of the experiment as well as for the evaluation of the ERTS imagery itself. Pursue acquisition of ERTS imagery over urban test sites. Meanwhile, analyses of 1970 urban land use from 1970 census contemporaneous aircraft photography is progressing. Land use maps, mosaics, and census overlays for the two largest urban test sites are nearing publication readiness. Area analyses are underway for San Francisco, Washington, Phoenix and Tucson.

One set of Computer Compatible Tapes for one ERTS frame of San Francisco was ordered and delivered.

e. Scientific results and practical applications (Category 2E).

Oral and written presentations listed under (f) include mention of likely applications of comparative urban area analyses using remote sensors aboard aircraft. Some applications and preliminary evaluations of ERTS imagery are also listed.

Analyses of cost benefits are planned, but none have been undertaken to date.

f. Published reports or talks:

"A Remote Sensing System for Monitoring Land Use Change in a Metropolitan Region," by James R. Wray, presented at a meeting of the American Society of Mechanical Engineers at Anaheim, September 12-13.

"A Preliminary Appraisal of ERTS-1 Imagery for the Comparative Study of Metropolitan Regions," by James R. Wray, presented at NASA Goddard Space Flight Center, Greenbelt, September 29.

"An Evaluation of the Pre-ERTS Simulation Imagery for Detection of Metropolitan Land Use Change," by James R. Wray, presented at the University of Michigan Eighth Symposium on Remote Sensing of the Environment, and to appear in the Proceedings thereof, Ann Arbor, October 2-6.

"The Use of Small-Scale Photography for Detecting Land Use Change," by Valerie A. Milazzo and Harry F. Lins, Jr. presented at the ACSM/ASP Fall Technical Convention, and published in the Proceedings, Columbus, Ohio, October 11-13. A similar version of this paper was presented at the University of Michigan Eighth Symposium on Remote Sensing, and will appear in the Proceedings, Ann Arbor, October 2-6.

g. Recommendations for improvement:

Recommend (1) collateral research in automatic pattern recognition of urban land use and land use change; (2) preparation of procedural manual for producing comparative urban analyses from high altitude photography, and (3) development of urban spatial growth model from comparative urban land use studies produced by this experiment. Proposals for these efforts have been submitted to, and accepted for funding by, the EROS Program Manager.

h. Changes in standing order forms:

A change from receipt of RBV imagery to MSS imagery was affected during the last reporting period. Since then, changes in the MSS bulk-processed products have been requested. The following 3 lists specify the products requested but not received, as specified in the

original product order (except for the change from RBV to MSS), those products received but not requested in the original product order, and those products requested in the revised product order, already submitted, for all future shipments of data.

MSS BULK - PRODUCTS REQUESTED BUT NOT RECEIVED

70 mm positive transparencies	(1 each band)
9.5 x 9.5 paper prints	(1 each band)
9 x 9 color composite positive transparencies	(1 composite)

MSS BULK - PRODUCTS RECEIVED BUT NOT REQUESTED

70 mm negative transparencies	(1 each band)
9 x 9 B-W positive transparencies	(2 each band)

MSS BULK - PRODUCTS REQUESTED IN REVISED PRODUCT ORDER

70 mm negative transparencies	(1 each band)
70 mm positive transparencies	(2 each band)
9 x 9 B-W positive transparencies	(2 each band)
9 x 9 color composite transparencies	(1 composite)

i. ERTS image description forms:

N.A.

j. Data request forms submitted:

None.

k. Status of data collection platforms (if applicable):

N.A.